

IN THE SPECIFICATION

Please replace the paragraph at page 2, line 19 to page 3, line 10, with the following rewritten paragraph:

A phase-change memory device according to an aspect of the present invention including:

memory cells including phase-change layers formed on a semiconductor substrate, the phase-change layer showing an amorphous-crystalline phase change;

a memory cell array which has the memory cells arranged in a matrix, the phase change layer including first regions which contact the semiconductor substrate in units of memory cells and a second region which connects the first regions arranged in a same column;

a first electrode layer formed on the second region of each phase-change layer, a contact area of each first region and the semiconductor substrate being smaller than a contact area of the second region and the first electrode layer, the first regions and the second region being formed of a material which shows a phase change between an amorphous phase and a crystalline phase;

a word line which connects the memory cells arranged in a same row; and

a bit line electrically connected to the first electrode layer, the bit line connecting in common the phase-change layers of the memory cells arranged in the same column.